# Seos™ + Prox Card

## Dual high/low frequency solution for streamlined migration

HID's Seos™ + Prox smart card incorporates secure, standards-based technology to manage and authenticate identities. The card provides a next-generation access control solution with stronger authentication, privacy protection, and a secure processor for increased data protection.

Ideal for security-conscious organizations that need to support proximity technology, the Seos + Prox card enables seamless migration to a future-proof, high-frequency solution. With 125 KHz contactless technology—which supports HID Prox®, Indala®, and EM Proximity—organizations can continue to support low-frequency applications, maximize the value of their investment, and migrate to Seos for higher security at their own pace.

Seos + Prox cards help enterprises and government organizations with identity management policies driven by regulatory compliance meet stringent credential security requirements. Part of HID's iCLASS SE® platform, the cards deliver superior data integrity protection by leveraging advanced cryptographic algorithms algorithms and secure messaging protocols (to protect data transmission with off-card applications).

Delivering maximum interoperability, Seos cards include a standards-based application offering a generic, universal card command interface that is portable to multiple platforms. The solution also supports an ISO/IEC 7816-4 command set and data model that defines the supported interfaces between an Seos card and the physical access reader.

For optimum mobility, Seos + Prox credentials are based on an open software application which is portable to a range of microprocessors and mobile devices, including near field communications (NFC) enabled device.


### KEY BENEFITS:

- **Data confidentiality and strong authentication –** Advanced cryptography provides mutual authentication and data encryption to protect communications..
- **Enhanced privacy –** Communicates no traceable identifiers during card sessions to help prevent card data from being divulged or cloned by unauthorized parties.
- **Increased interoperability –** Standards-based solution supports future technologies, portability to smartphones and other media.
- **Technology-independent security –** Provides multi-layered security with support for multiple Secure Identity Objects™ (SIOs®) for protection of each application's identity.
- **Radio frequency proximity support –** Includes read/write identification using 125 kHz contactless technology for support in existing deployments.

### FEATURES:

- Dual frequency smart card with 13.56 MHz and 125 KHz in the same card body
- Secure data storage with flexible data model using a firewall architecture
- Supports ISO/IEC standards: 7810, 7816, and contactless cards (14443 A)
- High communication speed: up to 848 kbps

## ADDITIONAL PRODUCT FEATURES:

- Large memory for demanding applications.
- High performance microprocessor.
- Mutual authentication protocol with either AES128/2TDEA based on diversified session key to protect each card session.
- Leverages Secure Identity Objects™ (SIO®) data model and security: Programmable with one or several SIOs for each application.
- High resistance to common attacks—man in the middle, replay attacks and others.
- Support other technologies, including Prox for simple migration.

## INTEROPERABILITY

- Fully supported by HID Signo Readers.
- Interoperable with iCLASS SE® Readers that can process SIO-enabled data formats.
- Standards-based solution maximizes interoperability with third-party applications, including PACS readers.

## OPTIONS

- Card customization, including magnetic stripe, custom artwork, text, or graphics: requires minimum quantity.
- Available with anti-counterfeiting features such as holograms, holographic foil, and Optical Variable Ink (OVI).

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| **Base Part** | **510 for standard card; 511 for embeddable card** |
| **Operating Frequency** | 13.56 MHz & 125kHz |
| **13.56 MHz Communication Protocol** | ISO14443A-4, up to 848kbps |
| **Seos Memory Size** | 8K or 16K |
| **Seos Privacy Mode** | Privacy-preserving mode with encryption of device identifiers |
| **Seos Secure Messaging** | EN 14890-1 Using AES128 |
| **Seos Mutual Authentication** | Based on ISO/IEC 24727-3 2008 with NIST SP800-56A (for session key derivation) |
| **TUViT SEAL-5 Certified** | Yes |
| **Seos Write Endurance** | Min 500,000 cycles |
| **Seos Data Retention** | Minimum of 10 years |
| **Seos HID Format Support** | Yes (wrapped in SIO) |
| **125kHz Format Support** | HID Prox, Indala and EM formats supported |
| | **SEOS COMPATIBILITY & PERFORMANCE[1]** |
| **Signo Reader** | SIO Read, up to 7cm (2.8") – model dependent |
| **iCLASS / multiCLASS SE Readers** | SIO Read, up to 5.5cm (2.2") – model dependent |
| **CP1000D Desktop Encoder** | SIO R/W, Custom Data R/W – use "V" profile for SIO field programming |
| **iCLASS SE RB25F Fingerprint Reader** | Template R/W |
| **Omnikey and Embedded SE Devices** | SIO Read, custom data R/W - model dependent[2] |
| | **125KHZ COMPATIBILITY & PERFORMANCE[1]** |
| **HID Prox/Indala Readers** | Up to 14cm (5.5") – model dependant |
| **multiCLASS SE Readers** | Up to 4cm (1.6") – model dependant |
| **Signo Reader** | Up to 5cm (2") – model dependant |
| **CP1000 Desktop Encoder** | HID Prox Read/Write |
| **iCLASS SE RB25F Fingerprint Reader** | Not Compatible |
| **OMNIKEY and Embedded SE devices** | Read only[7] |
| | **MECHANICAL, ENVIRONMENTAL AND COMPLIANCE** |
| **Printing** | HID recommends the use of a high-definition printer (HDP) for this card<br>If using direct-to-card printing technology a print exclusion zone applies.<br>Refer to PLT-06132 for details. |
| **Card Construction** | Composite construction (40% PVC, 60% PET) |
| **Weight** | ~ 0.2 oz (5.5g) |
| **Operating Temperature** | -40° F to 122° F (-40 °C to + 70 °C) |
| **Storage Temperature** | -31° F to 122° F (-35 °C to + 50 °C) for 1000h |
| **Thermal Shock** | -31° F to 176° F (-35 °C to + 80°C) 100 cycles<br>(soaking time 5 min, transition time 30 s) |
| **Chemical Resistance** | The card can withstand exposure salt water (5%) salt mist, acetic acid water (5%), carbonated sodium water (5%), sugared water (10%), ethylene glycol (50%) for at least 24 hours |
| **Standards Compliance** | ISO14443A-4, ISO/IEC 24727-3:2008, EN 14890-1:200 |
| **Environmental Compliance** | RoHS, China RoHS, REACH, Halogen Free |
| **Warranty** | Lifetime Warranty |

[1] HID Global testing occurs in open air. Some environmental conditions, including metallic mounting surface, can significantly degrade read range and performance; plastic or ferrite spacers are recommended to improve performance on metallic mounting surfaces. Spacers for iCLASS SE readers are available at hidglobal.com.

[2] Refer to Extended Access Technologies HTOG for appropriate part number and details of compatibility, not all features are supported.

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